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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,422	07/02/2003	Lucy M. Bull	005950-790	5145

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BUCHANAN, INGERSOLL & ROONEY PC
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EXAMINER	
SINGH, PREM C	

ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
07/17/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/613,422	BULL ET AL.	
	Examiner	Art Unit	
	PREM C. SINGH	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-22 and 25-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-22 and 25-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *This action replaces action mailed 2/14/2008, period for response is reset*.

DETAILED ACTION

Response to Amendment

1. Examiner acknowledges the response filed on 11/16/2007 containing remarks and amendment to claim 32.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 2, 5-18, 21, 25-27, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cain et al (US Patent 2,877,257) in view of Moore, Jr. et al.

4. The Cain reference discloses a process for removing metal contaminants from a Fischer-Tropsch derived hydrocarbon stream. At least a portion of these contaminants would necessarily originate from the processing equipment and catalyst. The process comprises passing the hydrocarbon stream to a treatment zone where the hydrocarbon stream contacts an aqueous acidic stream that is passed to the treatment zone (i.e., extraction column). The acidic stream should have a strength corresponding to concentrations of sulfuric acids ranging from about 1.5 to about 50 weight percent. These concentrations would necessarily be within the claimed ranges. The resulting mixture that includes precipitated solids is then separated to recover an extracted hydrocarbon stream and a modified acidic stream. The acidic stream can comprise an inorganic acid such as sulfuric acid or an organic acid such as acetic acid. The acidic stream used in the process may also comprise the aqueous phase produced in the F-T process. This produced aqueous phase contains acetic acid. Also, the examples in the

Cain reference clearly are batch treatments but it is also clear from Figure 2 that the process can be operated continuously. The extraction step is performed until essentially all the iron is removed from the hydrocarbon stream. This would necessarily disclose the limitations of claim 26 (See column 1, lines 15-36; column 2, lines 48-51; column 3, lines 9-35 and 52-75; column 4, lines 1-43; column 7, lines 41-73; column 8, lines 1-24; the examples, and Figure 2).

The Cain reference also discloses that acetic acid is used in the extraction processes. Therefore, such an extraction would necessarily produce a third phase as claimed.

The Cain reference does not disclose using a cobalt catalyst in the F-T step and does not disclose that aluminum is removed from the hydrocarbon. The Cain reference also does not disclose the extraction conditions of claim 27 and does not disclose passing the acid extracted F-T derived hydrocarbon stream to a hydroprocessing reactor and then hydroprocessing this stream.

The Moore reference discloses that F-T streams are produced in processes that utilize catalysts such as iron or cobalt catalysts (See paragraph [0079]). The Moore reference also discloses that F-T derived streams may be fractionated (i.e., distilled) and hydrotreated (See paragraphs [0047] and [0048]).

Since Moore reference indicates that iron or cobalt catalysts are equally effective, one can be substituted by the other. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process

of Cain by using a cobalt catalyst in the F-T step as suggested by Moore. It is expected that the Cain's process will be equally effective with cobalt catalyst also. See *In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).* Regarding the removal of aluminum contamination, such removal would necessarily occur in the modified process since the same feed as claimed is contacted with the same acid as claimed.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Cain by distilling and hydrotreating the purified hydrocarbon stream as suggested by Moore because a stream with fewer undesired components such as olefins will be produced.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Cain by utilizing the conditions of claim 27 because one would utilize any conditions that result in the removal of contaminants disclosed by Cain.

5. Claims 19, 20, 22, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cain et al. (US 2,877,257) in view of Moore, Jr. et al. (US 2002/0173556 A1) as applied to claims 1, 2, and 5-18 above, and further in view of Zhou (US 6,476,086 B1).

The previously discussed references do not disclose filtering the hydrocarbon stream after the contacting step and do not disclose adding a surfactant to the hydrocarbon stream.

The Zhou reference discloses a process for separating contaminant particles from an F-T derived stream. The process comprises contacting the stream with a composition that comprises a surfactant. The reference also discloses that filtration techniques have been used to separate solid contaminants from F-T derived streams (See column 1, lines 29-40 and 65-67; column 2, lines 1-67; and column 3, lines 1-11).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by filtering the product as suggested by Zhou because filtering will remove any solid contaminants from the product.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by adding a surfactant to the hydrocarbon stream as suggested by Zhou because the addition of a surfactant will enhance the separation process.

6. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cain et al. (US 2,877,257) in view of Moore, Jr. et al. (US 2002/0173556 A1) and Zhou (US 6,476,086 B1).

With respect to claims 32 and 33, Cain reference discloses production of Fischer-Tropsch derived hydrocarbon stream by passing syngas to a FT reactor (See column 1, lines 30-54). Figure 2 of Cain invention also discloses that the downstream processing

of the FT products is a continuous process. This implies that FT synthesis should also be a continuous process.

As discussed earlier, the Cain reference does not disclose that an additive is added to the reactor and does not disclose filtering the hydrocarbon stream after the adding step. The reference also does not disclose adding a surfactant to the hydrocarbon stream or passing the F-T derived hydrocarbon stream to a hydroprocessing reactor.

The Moore reference discloses that F-T streams are produced in processes that utilize catalysts such as iron or cobalt catalysts. See paragraph [0079]. The Moore reference also discloses that F-T derived streams may be fractionated (i.e., distilled) and hydrotreated (See paragraphs [0047] and [0048]). Moore also confirms that the FT synthesis is a continuous process (See paragraph [0076]).

The Zhou reference discloses a process for separating contaminant particles from an F-T derived stream. The process comprises contacting the stream with an additive composition that comprises a surfactant. The reference also discloses that filtration techniques have been used to separate solid contaminants from F-T derived streams (See column 1, lines 29-40 and 65-67; column 2, lines 1-67; and column 3, lines 1-11). Zhou also discloses use of an internal filter for slurry-bed iron catalyst FT reactors (See column 1, lines 29-31, 50-53).

It would have been obvious to one having ordinary skill in the art to modify the process of Cain by adding the acid to the reactor because the same purification would

take place with the added benefit of cost savings due to the reduced equipment requirement.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Cain by filtering the product resulting from the extraction step as suggested by Zhou because filtering will remove any solid contaminants from the product.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Cain by adding a surfactant to the hydrocarbon stream as suggested by Zhou because the addition of a surfactant will enhance the separation process.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Cain by hydrotreating the purified hydrocarbon stream as suggested by Moore because a stream with fewer undesired components such as sulfur, nitrogen and olefins, will be produced.

Response to Arguments

7. Applicant's arguments filed 11/16/2007 have been fully considered but they are not persuasive.

Applicant's Declaration filed 03/02/2007 under 37 C. F. R. §1.132 has been fully considered but is not persuasive.

The Applicant argues that Cain uses iron catalyst and does not address aluminum or aluminum contaminants. Moore uses cobalt catalyst and does not disclose any contamination. The Applicant's argument is not persuasive because Moore discloses that suitable FT catalysts comprise one or more Group VIII metals such as Fe, Ni, Co, Ru and Re (See paragraph [0079]). Obviously, any of the cited catalysts can be used effectively. Thus, one skilled in the art could substitute Cain's Fe catalyst by Moore's Co catalyst with expectation of similar results. Moore uses a cobalt catalyst which can additionally have iron (See paragraph [0079]). Moore also discloses slurry bed reactor using particulate FT catalyst dispersed and suspended in the slurry liquid (See paragraph [0078]). Thus, under reaction temperature and pressure conditions (See paragraph [0076]), the FT synthesis product will necessarily have some catalyst contaminants suspended in it. Since Moore is using a similar catalyst , feed, and operating conditions as claimed by the Applicant, Moore will necessarily have similar contaminant problem as claimed by the Applicant. Further, because Moore's cobalt catalyst could have iron also, Moore's problem and Cain's problem are similar to remove catalyst contaminant from the FT synthesis product. Cain and Moore both use similar catalysts and therefore will produce similar contaminants.

The Applicant argues that it would not have been obvious to use the cobalt catalyst from Moore in the Fischer-Tropsch process of Cain.

In response to the Applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine,* 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones,* 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Cain discloses use of iron catalyst and Moore teaches use of both iron and cobalt catalysts in the Fischer-Tropsch processes. Therefore, one skilled in the art could substitute Cain's iron catalyst with Moore's cobalt catalyst because both are expected to give similar results. See *In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).*

Applicant's arguments relating to the third phase claim limitation is not persuasive because Cain reference discloses that acetic acid is used in the extraction processes. Therefore, such an extraction would necessarily produce a third phase as claimed (See rejections, above).

The Applicant further argues that there is no teaching in the cited references to feed a surfactant stream directly to a Fischer-Tropsch reactor operated under continuous conditions. The Applicant's argument is not persuasive because Cain discloses a downstream continuous process of treating Fischer-Tropsch (FT) synthesis

product (See figure 2). Also, Moore discloses a continuous Fischer-Tropsch process (See paragraph [0076]). Zhou invention discloses feeding an additive surfactant (See column 1, lines 65-67; column 2, lines 1-67; column 3, lines 1-11). Zhou also discloses use of an internal filter for slurry bed iron catalyst FT reactor (See column 1, lines 50-53). Thus, it would have been obvious to one skilled in the art to use an additive surfactant in the FT reactor for efficient separation of catalyst particulates from the FT synthesis product.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PREM C. SINGH whose telephone number is (571)272-6381. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Glenn A Caldarola/
Acting SPE of Art Unit 1797